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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,382	03/03/2004	Ekaterina Bourova	Q79968	3506
23373	7590	11/02/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			DIACOU, ARI M	
			ART UNIT	PAPER NUMBER
			3663	

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/791,382

Applicant(s)

BOUROVA ET AL.

Examiner

Ari M. Diacou

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. In the remarks filed 8-21-2006, applicant argued the following:
 - A. On page 7, that the examiner has not made a prima facie case under 35 USC 112, because the examiner has rejected the claims over case law.
 - B. On page 7-8, that the claims have been amended to overcome the 112 (2nd) rejection, and the rejection should be withdrawn.
 - C. On page 8, that Lee is not available art under 102(b) because it does not teach all the claimed features.
2. Argument A is unconvincing, the examiner apologizes for not citing references for the case law he was referring to, but the claims are not rejected over case law. The examiner has made a prima facie case against the claims (e.g. "Regarding claim 7, the specification enables $n_2 - n_1 = 0.01$, but does not enable one skilled in the art to make a device with a cladding $n_2 - n_1 = 20$ "). The case law the examiner was referring to are summarized in the MPEP 2173.05(b) – Relative terminology, and MPEP 2173.05(c) – Numerical ranges and amounts limitations.
3. Argument B. is convincing the rejection is hereby withdrawn.
4. Argument C. is convincing the rejection is hereby withdrawn.

Claim Rejections - 35 USC § 112

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5. The following is a quotation of the first two paragraphs of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. The claims are replete with open-ended ranges. While case law (See MPEP 2173.05(b &c)) has resolved many issues of definiteness with regard to ranges, an open ended range is rarely enabled to the extent claimed by the applicant, and as such conflicts with the enablement requirement of 35 U.S.C. 112, first paragraph. To resolve this conflict, all ranges must be closed-ended.

7. Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for some parameters, does not reasonably provide enablement for all parameters within the scope claimed. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

- Regarding claim 1, the specification enables (absorption = 100 dB, Raman efficiency = 0.5 W^{-1}), but does not enable one skilled in the art to make a device that has an absorption of 10000 dB and still has a Raman efficiency $\geq 0.5 \text{ W}^{-1}$.
- Regarding claim 2, the specification enables EDFA gain of 1dB, but does not enable one skilled in the art to make a device that has an EDFA gain of 1000 dB.

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- Regarding claim 3, the specification enables a fiber length of 100m, but does not enable one skilled in the art to make or use a device with a fiber length of 10^6 kilometers.
- Regarding claim 4, the specification enables $3W^{-1}km^{-1}$, but does not enable one skilled in the art to make a device that has a Raman efficiency of $10000W^{-1}km^{-1}$.
- Regarding claim 5, the specification enables an inner radius of 1.5 μm , but from the drawings we are to assume that the inner radius in question is the same as the radius of the single-mode core. The specification therefore does not enable anyone to make a single mode fiber in glass that has a radius of 10 meters.
- Regarding claim 6, the specification enables a rare earth concentration of 1000 ppm, but does not enable one skilled in the art to make a device that has an absorption of 100 dB with a rare-earth concentration of 1 part per mol.
- Regarding claim 7, the specification enables $n_2 - n_1 = 0.01$, but does not enable one skilled in the art to make a device with a cladding $n_2 - n_1 = 20$.

8. Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for some parameters, does not reasonably provide enablement for all parameters within the scope claimed. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

- Regarding claim 1, the specification enables (absorption = 100 dB, Raman efficiency = 0.5 to $5.0 W^{-1}$), but does not enable one skilled in the art to make a

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device that has an absorption of 100 dB and still has a Raman efficiency $\geq 6 \text{ W}^{-1}$.

[¶ 0017]

- Regarding claim 2, the specification enables EDFA gain of 1dB to 60dB, but does not enable one skilled in the art to make a device that has an EDFA gain of 70 dB. [¶ 0025]
- Regarding claim 3, the specification enables a fiber length of 100m to 1000m, but does not enable one skilled in the art to make or use a device with a fiber length of 2000 meters. [¶ 0030]
- Regarding claim 4, the specification enables $3\text{W}^{-1}\text{km}^{-1}$, but does not enable one skilled in the art to make a device that has a Raman efficiency of $4\text{W}^{-1}\text{km}^{-1}$. [¶ 0033]
- Regarding claim 5, the specification enables an inner radius of $1.5 \mu\text{m}$, but from the drawings we are to assume that the inner radius in question is the same as the radius of the single-mode core. The specification therefore does not enable anyone to make a single mode fiber in glass that has a radius of $6 \mu\text{m}$. [¶ 0034]
[¶ 0038]
- Regarding claim 6, the specification enables a rare earth concentration of 1000 ppm, but does not enable one skilled in the art to make a device that has an absorption of 100 dB with a rare-earth concentration of 1 ppm. [¶ 0035]
- Regarding claim 7, the specification enables $n_2 - n_1 = 0.01$, but does not enable one skilled in the art to make a device with a cladding $n_2 - n_1 = 0.1$. [¶ 0038]

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9. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 does not specify whether the doped ring or the undoped core has an absorption of greater than 100 dB.

Allowable Subject Matter

10. Claims 1-10 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 1st paragraph, set forth in this Office action.

11. The following is an examiner's statement of reasons for finding allowable subject matter in claim 1:

The examiner found that it is well-known in the art to have a single-mode, rare-earth-doped core, surrounded by a multimode, undoped pumping layer (disclosed in background of Inov among others).

The examiner also found art that included a rare earth doped core, and a rare-earth doped cladding layer, but the art either had 2 single mode active layers (Kleinerman), 2 multimode active layers (Waarts), or no information on the number of modes at all (Inagaki), but there was no evidence of art that included:

- A single mode core of a given diameter; and
- A multimode core surrounding the single-mode core and containing a doped layer having a certain concentration of active rare earth ions, the fiber being

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suitable, because of the active rare earth ions, for amplifying an optical signal for injection into the optical amplifier.

Within the context of claim 1.

12. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

13. While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of claims. See In re Mratz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

14. The references made herein are done so for the convenience of the applicant. They are in no way intended to be limiting. The prior art should be considered in its entirety.

15. The prior art which is cited but not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ari M. Diacou whose telephone number is (571) 272-5591. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AMD 10/30/2006


JACK KEITH
SUPERVISORY PATENT EXAMINER